

What is claimed is:

- Sch 11
1. System for processing a substrate comprising:
a polisher having one or more polishing heads and one or more platens, the polishing heads adapted to retain the substrate against the platens during processing and providing motion therebetween;
a load cup;
a first motion device disposed proximate a first side of the polisher for moving along the first side between at least a first position and a second position; and
a second motion device coupled to the first motion device and the load cup; the second motion device moving the load cup between at least a first position adjacent the first side and a second position inward of the first side.
 2. The system of claim 1, wherein the first motion device moves substantially perpendicular to the second motion device.
 3. The system of claim 1, wherein the first motion device comprises a lead screw, a ball screw, a belt, a cylinder, a solenoid, a sawyer motor or a linear actuator.
 4. The system of claim 1 further comprising a substrate handler for transferring substrates to the load cups.
 5. The system of claim 5, wherein the substrate handler further comprises an edge contact substrate gripper, a robot and a rotary actuator coupling the gripper to the robot.
 6. The system of claim 5 further comprising:
a factory interface, wherein the substrate handler transfers substrates between the factory interface and the load cup.

7. The system of claim 6 further comprising:
a plurality of substrate storage cassettes coupled to the factory interface.
8. The system of claim 6 further comprising a cleaner disposed in the factory interface.
9. The system of claim 6 further comprising an input module disposed in the factory interface proximate the polisher.
10. The system of claim 9, wherein the input module is adapted to retain the substrate in a vertical position.
11. The system of claim 6 further comprising:
a plurality of substrate storage cassette coupled to the factory interface;
an input module disposed in the factory interface proximate the polisher;
and
a factory interface robot for transferring substrates between the input module and the storage cassettes.
12. The system of claim 1 further comprising:
a third motion device disposed proximate a second side of the polisher, the third motion device moving along the second side between at least a first position and a second position;
a second load cup; and
a fourth motion device coupled to the third motion device and the second load cup, the fourth motion device moving the second load cup between at least a first position proximate the second side and a second position inward of the second side.
13. The system of claim 12, wherein the first side of the polisher is opposite the second side of the polisher.

14. The system of claim 12, wherein the one or more platens comprises two platens.
15. The system of claim 12, wherein the one or more platens comprises four platens.
16. The system of claim 15, wherein two platens comprise a buffing station and two platens comprise a polishing station.
17. The system of claim 12 further comprising a polishing pad disposed on at least one of the platens.
18. The system of claim 12 further comprising a polishing web disposed on at least one of the platens.
19. The system of claim 12 further comprising a carousel disposed between the platens and supporting the polishing heads.
20. The system of claim 15 further comprising:
a first drive system coupled to the polisher and supporting a first pair of polishing heads; and
a second drive system coupled to the polisher and supporting a second pair of polishing heads.
21. A system for processing a substrate comprising:
a polisher having one or more polishing heads and one or more platens, the polishing heads adapted to retain the substrate against the platens during processing and providing motion therebetween;
a first motion device disposed adjacent a first side of the polisher, the first motion device being movable along the first side of the polisher;
a first load cup coupled to the first motion device;

a second motion device disposed adjacent a second side of the polisher, the second motion device being movable along the second side of the polisher, the second side being opposite the first side of the polisher; and

a second load cup coupled to the second motion device.

22. The system of claim 21, wherein the first motion device further comprises a third motion device coupled to the first load cup, the third motion device adapted to move the first load cup between a first position proximate the first side of the polishing and a second inward position.

23. The system of claim 21, wherein the second motion device further comprises a fourth motion device coupled to the second load cup, the fourth motion device adapted to move the second load cup between a first position proximate the second side of the polishing and a second inward position.

24. The system of claim 21 further comprising a substrate handler disposed on a third side of the polisher.

25. The system of claim 24 further comprising:
a plurality of substrate storage cassette coupled to the factory interface;
an input module disposed in the factory interface proximate the third side of the polisher; and
a factory interface robot for transferring substrates between the input module and the storage cassettes.

26. The system of claim 25, wherein the input module is adapted to retain the substrate in a vertical position.

27. The system of claim 24, wherein the substrate handler further comprises an edge contact substrate gripper, a robot and a rotary actuator coupling the gripper to the robot.

28. The system of claim 21 further comprising a cleaner disposed proximate a third side of the polisher.
29. The system of claim 21, wherein the one or more platens comprises two platens.
30. The system of claim 21, wherein the one or more platens comprises four platens.
31. The system of claim 30, wherein two platens comprise a buffing station and two platens comprise a polishing station.
32. The system of claim 21 further comprising a polishing pad disposed on at least one of the platens.
33. The system of claim 21 further comprising a polishing web disposed on at least one of the platens.
34. The system of claim 21 further comprising a carousel disposed between the platens and supporting the polishing heads.
35. The system of claim 21, wherein the first motion device comprises a lead screw, a ball screw, a cylinder, a solenoid, a sawyer motor or a linear actuator.
36. A system for processing a substrate comprising:
a polisher having one or more polishing heads and one or more platens, the polishing heads adapted to retain the substrate against the platens during processing, the platens and polishing heads having a relative motion therebetween;
a first motion device disposed adjacent a first side of the polisher, the first motion device being movable along the first side of the polisher;
a first load cup coupled to the first motion device;

a second motion device disposed adjacent a second side of the polisher, the second motion device being movable along the second side of the polisher, the second side being opposite the first side of the polisher;

a second load cup coupled to the second motion device; and

a substrate handler disposed proximate a third side of the polisher.

37. The system of claim 36, wherein the first motion device further comprises:

a third motion device coupled to the first load cup, the third motion device adapted to move the first load cup between a first position proximate the first side of the polishing and a second inward position; and

wherein the second motion device further comprises a fourth motion device coupled to the second load cup, the fourth motion device adapted to move the second load cup between a first position proximate the second side of the polishing and a second inward position.

38. The system of claim 37, wherein the one or more platens comprises four platens.

39. The system of claim 21 further comprising a polishing pad or a polishing web disposed on at least one of the platens.

40. A system for processing substrates comprising:

a polisher having a first drive system and a second drive system, each drive system having at least one polishing head coupled thereto;

a first motion device coupled to a first side of the polisher, the second motion device comprising:

a substrate gripper movably disposed along the first side of the polisher;

at least one shuttle table having one or more load cups adapted to transfer substrates between the gripper and the polishing head of the first drive system; and

a second motion device coupled to a second side of the polisher, the second motion device comprising:

a substrate gripper movably disposed along the first side of the polisher;

at least one shuttle table having one or more load cups adapted to transfer substrates between the gripper and the polishing head of the second drive system.

41. A method for processing substrates in a polisher comprising the steps of: transferring a first substrate into a first load cup located in a first position; moving the first load cup proximate a first side of the polisher to a second position;

moving the first load cup to a third position inward of the second position; and

transferring the substrate from the first load cup in the third position to a first polishing head.

42. The method of claim 41 further comprising the steps of:

pressing the first substrate against a first platen; and moving the first platen and the first polishing head relative to each other.

43. The method of claim 41 further comprising the steps of:

transferring the first substrate between a second load cup disposed in a first position and the first polishing head;

moving the second load cup outwardly from the first position to a second position;

moving the second load cup along a second side of the polisher to a third position proximate a substrate handler; and

transferring the first substrate from the second load cup to the substrate handler.

44. The method of claim 41 further comprising the steps of:
transferring a second substrate between a second load cup disposed in a first position and the substrate handler;
moving the second load cup along a second side of the polisher to a second position;
moving the second load cup inward to a third position; and
transferring the second substrate from the second load cup in the third position to a second polishing head.
45. The method of claim 44 further comprising the steps of:
polishing the first substrate on a first platen; and
polishing the second substrate on a second platen.
46. The method of claim 45 further comprising the steps of:
moving the first substrate to a third platen;
buffing the first substrate;
moving the second substrate to a fourth platen; and
buffing the second substrate.
47. The method of claim 45 further comprising the steps of:
transferring the first substrate to the first load cup; and
transferring the second substrate to the second load cup.
48. The method of claim 45 further comprising the steps of:
transferring the first substrate to the second load cup; and
transferring the second substrate to the first load cup
49. The method of claim 41 further comprising the steps of:
transferring a second substrate between a second load cup disposed and a second polishing head;
moving the second load cup to a position to receive the first substrate from the first polishing head; and

transferring the first substrate from the first polishing head to the second load cup.

50. The method of claim 41 further comprising the steps of:
pressing the first substrate retained in the first polishing head a first platen;
moving the first platen and the first polishing head relative to each other to polish the substrate;
moving the first polishing head above a second platen; and
moving the second platen and the first polishing head relative to each other to buff the first substrate.

51. The method of claim 41, wherein the movement between the first position to the second position is substantially perpendicular to the movement between the second position to the third position.

52. A method for processing substrates in a polisher comprising the steps of:
transferring a first substrate in a first load cup from a first side of the polisher towards a first polishing station;
transferring the first substrate to a first polishing head that is supported by a first carousel;
polishing the first substrate on the first polishing station;
transferring the first substrate while retained in the first polishing head to a second polishing station;
polishing the first substrate on the second polishing station;
transferring the first substrate to a second load cup;
transferring the first substrate in the second load cup away from the second polishing station towards a second side of the polisher that is opposite the first side.

53. The method of claim 52 further comprising:

loading a second substrate from the first load cup to a second polishing head that is support by the carousel after the first substrate is transferred to the second polishing station.

54. The method of claim 53 further comprising:

polishing the second substrate on the first polishing station simultaneously to the polishing of the first substrate on the second polishing station.

55. The method of claim 54 further comprising:

polishing a third substrate on a third polishing station;

transferring the third substrate to a fourth polishing station on a second carousel, wherein a path through the polishing stations by the third substrate is parallel a path of the first substrate.

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